

§ 1065.395

described in § 1065.690. Record the buoyancy-corrected mass of each of the references.

(8) Subtract each reference media's (e.g., filter's) buoyancy-corrected reference mass from its previously measured and recorded buoyancy-corrected mass.

(9) If any of the reference filters' observed mass changes by more than that allowed under this paragraph, you must invalidate all PM mass determinations made since the last successful reference media (e.g. filter) mass validation. You may discard reference PM media (e.g. filters) if only one of the filter's mass changes by more than the allowable amount and you can positively identify a special cause for that filter's mass change that would not have affected other in-process filters. Thus, the validation can be considered a success. In this case, you do not have to include the contaminated reference media when determining compliance with paragraph (d)(10) of this section, but the affected reference filter must be immediately discarded and replaced prior to the next weighing session.

(10) If any of the reference masses change by more than that allowed under this paragraph (d), invalidate all PM results that were determined between the two times that the reference masses were determined. If you discarded reference PM sample media according to paragraph (d)(9) of this section, you must still have at least one reference mass difference that meets the criteria in this paragraph (d). Otherwise, you must invalidate all PM results that were determined between the two times that the reference media (e.g., filters) masses were determined.

[73 FR 37313, June 30, 2008, as amended at 75 FR 23042, Apr. 30, 2010; 75 FR 68463, Nov. 8, 2010]

§ 1065.395 Inertial PM balance verifications.

This section describes how to verify the performance of an inertial PM balance.

(a) *Independent verification.* Have the balance manufacturer (or a representative approved by the balance manufacturer) verify the inertial balance per-

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formance within 370 days before testing.

(b) *Other verifications.* Perform other verifications using good engineering judgment and instrument manufacturer recommendations.

Subpart E—Engine Selection, Preparation, and Maintenance

§ 1065.401 Test engine selection.

While all engine configurations within a certified engine family must comply with the applicable standards in the standard-setting part, you need not test each configuration for certification.

(a) Select an engine configuration within the engine family for testing, as follows:

(1) Test the engine that we specify, whether we issue general guidance or give you specific instructions.

(2) If we do not tell you which engine to test, follow any instructions in the standard-setting part.

(3) If we do not tell you which engine to test and the standard-setting part does not include specifications for selecting test engines, use good engineering judgment to select the engine configuration within the engine family that is most likely to exceed an emission standard.

(b) In the absence of other information, the following characteristics are appropriate to consider when selecting the engine to test:

(1) Maximum fueling rates.

(2) Maximum loads.

(3) Maximum in-use speeds.

(4) Highest sales volume.

(c) For our testing, we may select any engine configuration within the engine family.

§ 1065.405 Test engine preparation and maintenance.

This part 1065 describes how to test engines for a variety of purposes, including certification testing, production-line testing, and in-use testing. Depending on which type of testing is being conducted, different preparation and maintenance requirements apply for the test engine.

(a) If you are testing an emission-data engine for certification, make sure it is built to represent production

engines. This includes governors that you normally install on production engines. Production engines should also be tested with their installed governors. If you do not install governors on production engines, simulate a governor that is representative of a governor that others will install on your production engines.

(b) Testing generally occurs only after the test engine has undergone a stabilization step (or in-use operation). If the engine has not already been stabilized, run the test engine, with all emission control systems operating, long enough to stabilize emission levels. Note that you must generally use the same stabilization procedures for emission-data engines for which you apply the same deterioration factors so low-hour emission-data engines are consistent with the low-hour engine used to develop the deterioration factor.

(1) Unless otherwise specified in the standard-setting part, you may consider emission levels stable without measurement after 50 h of operation. If the engine needs less operation to stabilize emission levels, record your reasons and the methods for doing this, and give us these records if we ask for them. If the engine will be tested for certification as a low-hour engine, see the standard-setting part for limits on testing engines to establish low-hour emission levels.

(2) You may stabilize emissions from a catalytic exhaust aftertreatment device by operating it on a different engine, consistent with good engineering judgment. Note that good engineering judgment requires that you consider both the purpose of the test and how your stabilization method will affect the development and application of deterioration factors. For example, this method of stabilization is generally not appropriate for production engines. We may also allow you to stabilize emissions from a catalytic exhaust aftertreatment device by operating it on an engine-exhaust simulator.

(c) Record any maintenance, modifications, parts changes, diagnostic or emissions testing and document the need for each event. You must provide this information if we request it.

(d) For accumulating operating hours on your test engines, select engine operation that represents normal in-use operation for the engine family.

(e) If your engine will be used in a vehicle equipped with a canister for storing evaporative hydrocarbons for eventual combustion in the engine and the test sequence involves a cold-start or hot-start duty cycle, attach a canister to the engine before running an emission test. You may omit using an evaporative canister for any hot-stabilized duty cycles. You may request to omit using an evaporative canister during testing if you can show that it would not affect your ability to show compliance with the applicable emission standards. You may operate the engine without an installed canister for service accumulation. Prior to an emission test, use the following steps to attach a canister to your engine:

(1) Use a canister and plumbing arrangement that represents the in-use configuration of the largest capacity canister in all expected applications.

(2) Use a canister that is fully loaded with fuel vapors.

(3) Connect the canister's purge port to the engine.

(4) Plug the canister port that is normally connected to the fuel tank.

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§ 1065.410 Maintenance limits for stabilized test engines.

(a) After you stabilize the test engine's emission levels, you may do maintenance as allowed by the standard-setting part. However, you may not do any maintenance based on emission measurements from the test engine (i.e., unscheduled maintenance).

(b) For any critical emission-related maintenance—other than what we specifically allow in the standard-setting part—you must completely test an engine for emissions before and after doing any maintenance that might affect emissions, unless we waive this requirement.

(c) Keep a record of the inspection and update your application to document any changes as a result of the inspection. You may use equipment, instruments, or engineering grade tools to identify bad engine components. Any equipment, instruments, or tools